



## ORIGINAL ARTICLE

# Obesity and Asian Americans in the United States: Systematic Literature Review

Sanggon Nam

*Department of Health Administration, Pfeiffer University, Morrisville, NC, USA.*

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**Abstract**

**Objectives:** Obesity is one of the most serious health problems in the world today. Asian Americans are usually less overweight and obese than African Americans and Hispanic Americans, but the rate of obesity in Asian Americans is still increasing, especially in younger generations. This research examines Asian American obesity using existing research, as a means of finding the need for greater emphasis on Asian American obesity intervention research.

**Methods:** In this research literature review, Asian American obesity using existing research as a means of finding the need for greater emphasis on Asian American obesity intervention research is examined. A systematic review is done in order to find Asian American obesity research, due to the minimal amount of existing studies. In total, there were only nine papers which were not duplicates and which still met the criteria for inclusion, from an initial 106 papers.

**Results:** There is very little research on obesity in Asian Americans. Although the rate of obesity among Asian Americans is increasing, there are few related articles, projects, and surveys, and there is little information. There is a need for more specific and in-depth analysis of Asian American obesity. Asian Americans are associated with a lower waist circumference (WC) and BMI, while Hawaiian/Pacific Islanders are associated with a higher WC and BMI. Typically, Asian Americans who were born in the United States (US) tend to be overweight and more obese than those born in foreign countries.

**Conclusion:** Based on this literature review, it is concluded that there is a shortage of Asian American obesity research, even though there is an evident need for particular obesity intervention programs that target Asian Americans.

## 1. Introduction

Obesity is one of the most serious health problems in the world today. Over the past 20 years, obesity among adults has increased significantly in the United States

(US). The dramatic obesity rate increased from 15% in 1980 to 32% in 2004 [1]. More than 60 million people (30%) of US adults aged  $\geq 20$  years are obese; the prevalence among members of minority groups is even higher [2]. In addition, these higher rates of obesity

E-mail: [sanggon.nam@pfeiffer.edu](mailto:sanggon.nam@pfeiffer.edu)

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among minority groups have been linked to higher rates of weight-related illnesses, such as type 2 diabetes, hypertension, heart disease, stroke, and some cancers [3].

The higher prevalence of obesity among minority groups includes rates for African Americans, Hispanic Americans, and Asian Americans/Pacific Islanders. In general, people who have a low socioeconomic status, or old women in minority populations, tend to be overweight or obese due to their dietary and physical exercise influences. More importantly, the rate of obesity in African Americans and Hispanic Americans is dramatically increasing compared with Caucasians [4]. Asian Americans are usually less overweight and obese than African Americans and Hispanic Americans, but the rate of obesity in Asian Americans is still increasing, especially in younger generations [5].

There is little research focusing on obesity in Asian Americans, however, there are numerous accounts for both African Americans and Hispanic Americans. It is likely that research on obesity in Asian Americans does not receive much attention, because of low overweight and obesity rates. Despite low rates of obesity, compared to other ethnic groups, there are only a few studies about Asian American obesity. Moreover, except for studies conducted in children, there are few obesity health intervention research studies regarding Asian Americans.

In this research literature review, Asian American obesity is examined using existing research as a means of finding the need for greater emphasis on Asian American obesity intervention research. Due to the lack of Asian American obesity research, it is important to obtain this information by reviewing statistics and reports conducted at public institutions, state, and government levels.

## 2. Materials and Methods

### 2.1. Asian Americans in the US

Asian Americans originate from the Far East, Southeast Asia, or the Indian subcontinent [6]. Asian Americans consist of >60 different ethnic groups and >100 different languages [7]. Geographically, the Asian American population usually resides in the western, northeastern, and part of the southern regions of the US. States with higher concentrations of the Asian American population are Hawaii, California, Washington, New Jersey, and New York [5].

According to the 2000 US Census, the population that regards themselves as only Asian American consists of around 10 million (3.6%) of the whole American population [6]. Currently, the number of Asian Americans is around 15.5 million (5%) of the total US population [8]. According to the Census Bureau projects, the population of Asian Americans will increase to 37.6 million in 2050, making 9.3% of the American population [6].

The growth in this particular population could be due to the fact that generally, Asian Americans are

considered to be healthy people. The life expectancy of Asian American women is the highest (85.8 years) in ethnic groups in the US [9]. Compared with other populations, "Asian Americans as a group were less likely to be current smokers, to be current moderate or heavier drinkers, to be obese, to have lost all their natural teeth, to have a functional limitation, to have experienced serious psychological distress, or to have been told they had hypertension." ([10], p. 7).

However, the facts regarding the health of Asian Americans are not always true. "Asian Americans have historically been overlooked due to the 'myth of the model minority': the erroneous notion that Asian Americans are passive, compliant, and without problems or needs. The effects of this myth have been the failure to seriously account for the very real concerns of this population." [11].

Asian Americans have critical health conditions ranging from cancer, heart disease, stroke, unintentional injuries (accidents), diabetes and obstructive pulmonary disease, hepatitis B, HIV/AIDS, smoking, tuberculosis, and liver disease [9]. In addition, Asian Americans are disadvantaged with regards to socioeconomic status, have several difficulties related to healthcare, such as language and cultural barriers, have a stigma associated with certain conditions, infrequently have medical visits, and lack health insurance [5].

### 2.2. Obesity and Asian Americans

Asian Americans are three times less likely to be obese compared to Non-Hispanic Whites (Table 1), however, Filipinos are 70% more likely to be obese than the overall Asian American population [12].

According to CDC statistics, "Native Hawaiian/Pacific Islanders are 3.7 times more likely to be obese than the overall Asian American population," and "The state of Hawaii found that the diabetes rate for Native Hawaiians was twice that of the White population [12]."

### 2.3. Systematic review

A systematic review was done in order to find Asian American obesity research, due to the minimal amount of existing studies. The inclusion and exclusion criteria for this systematic review were: (1) obesity or overweight research itself (such as not including diabetes); (2) population is adults >18 years old; (3) focusing on Asian Americans and Pacific Islanders; and (4) no newspaper and magazine articles (from the hand reference search).

The literature search was conducted employing online search databases, using: (1) "obesity" and "Asian American" or "overweight" and "Asian American" as keywords; and (2) references of selected articles. A systematic review of papers, articles, and other publications was conducted using the online search databases Medline and PubMed, by searching for the following sets of keywords: "obesity" and "Asian American," or "overweight" and "Asian American."

**Table 1.** Age-adjusted percentage of persons  $\geq 18$  years of age who are overweight and obese, 2007

	Asians	Non-Hispanic white	Asians/non-Hispanic white ratio
Overweight	29.2	34.5	0.8
Obese	8.9	24.8	0.4

Persons are considered overweight if they have a body mass index (BMI) of  $\geq 25$  and are considered obese if they have a BMI of  $\geq 30$ .

Source: CDC 2009. Summary Health Statistics for U.S. Adults: 2007. Table 31. (Directly from: <http://www.omhrc.gov/templates/content.aspx?ID=6456>).

### 2.3.1. “Obesity” and “Asian American” or “overweight” and “Asian American” as keywords

Initially, from Medline, we reviewed 106 papers using “obesity” and “Asian American,” or using “overweight” and “Asian American” as keywords. Among 106 papers, 67 were excluded due to an irrelevant paper title and topic, 33 were excluded after reviewing abstracts, and six papers met the criteria for literature review. From PubMed, we reviewed 25 papers using “obesity” and “Asian American,” or using “overweight” and “Asian American” as found in abstracts. Among 25 papers, 14 were excluded due to an irrelevant paper title and topic, seven were excluded after reviewing abstracts, and four papers met the criteria for inclusion and exclusion.

### 2.3.2. Hand searching of references of selected articles

The hand reference search yielded nine articles from references of selected articles. Among nine papers, five papers were excluded due to research methods, and two papers met the criteria for inclusion and exclusion. In total, there were only nine papers that were not duplicates and still met the criteria for inclusion.

## 3. Results

Table 2 shows the nine papers on research in obesity in Asian Americans. Generally, the rate of obesity among Asian Americans is lower compared with other ethnic groups. Asian American adults generally maintain good health characteristics, with regard to smoking habits, obesity, hypertension, not receiving medical care, self-rated health, and testing for HIV, compared with other ethnic groups [10].

Asian Americans are associated with a lower waist circumference (WC) and BMI while Hawaiians/Pacific Islanders are associated with a higher WC and BMI [15]. The rate of obesity among Asians is less likely to have a risk than that of Native Hawaiians and Samoans [16]. For Hawaiians/Pacific Islanders, education is important to explain the high BMI [15]. Consequently, there are obesity health risk disparities among Asians and Pacific Islanders [16]. However, there are no consistent associations between high BMI and ethnic

groups’ differences among each Asian American subgroup [19].

Typically, Asian Americans who were born in the US tend to be overweight and more obese than those born in foreign countries. The rate of obesity among US-born Asian Americans with many years residence in the US is currently increasing [17]. US-born women are three and a half times more obese than foreign-born women, and US-born men are four times more obese than foreign-born men [17]. US-born adults are likely to have a higher BMI than foreign-born adults, whereas, among the foreign population, the length of residence in the US is related to being overweight or having a risk of obesity [17,18].

In general, most socioeconomic characteristics and length of residence are related with BMI; especially, since the length of residence in the US is highly associated with obesity for Asian Americans [13]. Moreover, with a longer US residence, the rate of obesity is related to a higher BMI for those with lower education, women, and Hispanics *versus* counterpart groups [18].

Racial discrimination is associated with increased BMI for minorities, but is only sometimes evident for Asian Americans. Racial discrimination is highly related to being obese and having an increased BMI [14]. The association between racial discrimination and high BMI is increasing among Asian Americans in the US [14].

Consequently, there is very little research relating to obesity in Asian Americans. To make matters worse, the levels of the health disparities in research among Asian Americans and Pacific Islanders are simply descriptive, simple-comparative, and prevalent analysis [20]. Moreover, after reviewing nine articles from the systematic review, there was no longitudinal study conducted on Asian American obesity. Although the rate of obesity among Asian Americans is currently increasing, there are few articles, projects, and surveys, and there is little information. There is a need for more specific and in-depth analysis about Asian American obesity.

## 4. Discussion

Research into obesity in Asian Americans is much needed, because there are few articles, projects, and surveys that capture the development and effectiveness of Asian Americans obesity intervention research and programs [20]. The definitions of being overweight and obesity in Asian Americans should be considered in

**Table 2.** Systematic review in Asian American obesity

Authors	Purpose	Sample	Geographic area of study	Study design	Statistical analysis	Independent variables	Dependent variables	Results
Cho and Juon, 2006 [13]	To examine the prevalence of being overweight and obesity in Korean Americans. To identify important factors of obesity	2003 California Health Interview Survey, 492 Korean American adult respondents	California	Cross-sectional	Multivariate logistic regression	Sociodemographic characteristics (age, sex, marital status, education, employment, poverty), acculturation (length of residence in the US), health behaviors (drinking and smoking habits), and access to health care (health insurance coverage)	BMI	From the analysis, most socioeconomic characteristics and length of residence were related with BMI. More importantly, the length of residence in the US was highly associated with obesity
Gee et al, 2008 [14]	To review the associations between racial discrimination - high BMI and being obese among Asian Americans	The 2002 to 2003 National Latino and Asian American Study ( <i>n</i> = 1956 adults)	National	Cross-sectional	Ordinary least squares regression and multinomial logistic regression	Measures of discrimination (the Everyday Discrimination Scale), mental disorders [Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), criteria], race, gender, weight, height, age, sexual orientation, income, and education	BMI	Authors argued that: (1) racial discrimination was related with being highly obese and having a high BMI controlling for other factors; and (2) in addition, the relationship between racial discrimination and high BMI is increasing among Asian Americans in the US
Brown et al, 2009 [15]	To examine ethnic differences among adults in Hawaii	Hawaiian adults who attended elementary school ( <i>n</i> = 482)	Hawaii	Cross-sectional	Multivariate analyses of covariance (MANCOVAs)	Weight, waist circumference, triceps skinfold, and socioeconomic status	Ethnicity and sex	This research examined ethnic differences among adults in Hawaii. Asian Americans were associated with lower waist circumference (WC) and lower BMI. However, Hawaiians/Pacific Islanders were associated with higher WC and BMI. In addition, education was an important variable in explaining higher BMI in Hawaiians/Pacific Islanders
Davis et al, 2004 [16]	To investigate any association between ethnicity and obesity in terms of health disparities between Asians and Pacific Islanders	Medical literature about obesity in the US, including Hawaii	National (specially in Hawaii)	Literature review				Using medical literature about obesity in the US, including Hawaii, authors found that the rate of obesity among Asians was less likely to have a risk when compared to the risk for Native Hawaiians and Samoans. The authors also found that there were obesity health risk disparities among Asians and Pacific Islanders
Lauderdale and Rathouz, 2000 [17]	To review BMI and the rate of being overweight and obese among Asian	1992–1995 National Health Interview Survey (NHIS, <i>n</i> = 7263)	National	Cross-sectional	Logistic and linear regression	Race, age, sex, height, weight, years in US for the foreign-born, household income and household size.	BMI	Generally the rate of obesity among Asian Americans was very low compared with other ethnic groups. Authors found

	American adults (6 largest groups, Chinese, Filipino, Asian Indian, Japanese, Korean, Vietnamese)							that US-born women were 3.5 times more obese than foreign-born women, and US-born men were 4 times more obese than foreign-born men. Further, among the foreign-born population, the length of residence in the US was related to being overweight or having a risk of obesity. Authors conclude that the rate of obesity among US-born Asian Americans with many years residence in the US is currently increasing
Sanchez-Vaznaugh et al, 2008 [18]	To examine any relationships between birthplace and length of residence in the US with BMI	The 2001 California Health Interview Survey (CHIS, $n = 56,270$ )	California	Cross-sectional	Linear and logistic regression	Combining birthplace and US length of residence as one variable, education, age, race, fruit and vegetable consumption, exercise, smoking and drinking status, and income	BMI	Authors found that: (1) US-born adults were more likely to have a higher BMI than foreign-born adults; (2) among the foreign-born population, the length of residence in the US was related to being overweight or having a risk of obesity; (3) the rate of obesity in the longer residence in the US was related with a higher BMI, especially for lower education, women, and Hispanics compared to counterpart groups
Yates et al., 2004 [19]	To compare BMI and body/self-dissatisfaction among Asian Americans	821 community college students in Hawaii	Hawaii	Cross-sectional	Pearson correlation analyses and ANOVA analyses	Gender, age, weight, height, ethnic self-identification, parent ethnicity, dieting behavior and exercise frequency and investment, and self-loathing subscale (SLSS)	BMI, exercise investment and exercise frequency (h/wk), and body size	The relationship between BMI and body and self-dissatisfaction for women and men was significant. Authors found that men were more satisfied with their body and more diverse in ideal body types than women. There were no consistent associations between high BMI and ethnic groups' differences among each Asian American subgroup
Barnes et al, 2008 [10]	To review national estimates for selected health characteristics among Asian American adults	2004–2006 National Health Interview Surveys (NHIS)	National	Cross-sectional	Descriptive analysis	Social demographics, health behaviors, health care utilization, health conditions, immunizations, and human immunodeficiency virus (HIV) testing status	Racial groups	Asian American adults generally maintain good health characteristics, such as least smokers, obesity, hypertension, not receiving medical care, self rated health, and testing for HIV compared with other ethnic groups

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Table 2 – (continued)

Authors	Purpose	Sample	Geographic area of study	Study design	Statistical analysis	Independent variables	Dependent variables	Results
Esperat et al, 2004 [20]	To review health disparities in literature among Asian Americans and Pacific Islanders	22 research projects in 1990–2003 among Asian Americans and Pacific Islanders	National	Literature review				Authors reviewed health disparities in literature among Asian Americans and Pacific Islanders. They reviewed 22 research projects in 1990–2003. According to authors, “acculturation, help-seeking behaviors, family and social networks, and cultural brokering” (p.135) were important factors in health disparities research among Asian Americans and Pacific Islanders. There was little research about this topic and sample. To make matters worse, levels of these health disparities research among Asian Americans and Pacific Islanders were only just descriptive, simple-comparative, and prevalent analysis

terms of an anthropometric trends perspective, due to the fact that their standard of being overweight and obese is different to other racial groups [21].

The specific needs of intervention for Asian Americans and Pacific Islanders should be increased due to their particular physical, environmental, and nutritional conditions [20]. Based on this literature review, it is concluded that there is a shortage of Asian American obesity research, even though there is an evident need for particular obesity intervention programs that target Asian Americans.

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